

# RRI Newsletter

Issue-21 A quarterly Newsletter of RRI March 2024



Mr. S M Abu Horayra, Director General, on behalf of River Research Institute greeted and congratulated Mr. Zahid Farooq, MP and Honorable State Minister, Ministry of Water Resources, for being re-elected from the Barisal-5 parliamentary seat in the 12th National Parliament Election.



Mr. S M Abu Horayra, Director General on behalf of River Research Institute congratulated the Honorable State Minister Mr. Zahid Farooq, MP on his re-appointment as State Minister of Ministry of Water Resources.

## Role of RRI for Sustainable Water Resources Development in Bangladesh

Dr. Engr. Md. Alauddin Hossain, PSO, RRI and S M Abu Horayra, DG, RRI

Bangladesh is a flat deltaic region having a unique and uncommon system of rivers, tributaries and distributaries which play an important role in its agriculture, communication, economic development, social and natural environment. But these river systems are getting silted up gradually each year along with the shifting of the shore line, which is causing navigational, communication, transportation and irrigation & drainage problem. In addition, Floods and river bank erosion are a perennial occurrence in Bangladesh and it takes away a huge toll of lives and valuable properties every year, which affects our micro economy severely. The increasing landless people due to bank erosion is one of the main reasons of poverty in Bangladesh. Drought is

also a problem for the country which affects our food production severely. Devastating effects of floods, drought, river bank erosion and sedimentation must be controlled for rapid development of the country. Water resources should be utilized properly to increase food production and generation of hydro-electricity. Crops as well as crops land must be protected from saline water inundation and river bank erosion respectively. For overcoming this prevailing situation, the rivers need to be trained and dredged to increase their hydraulic efficacy and to protect river bank from erosion. Irrigation, drainage and communication system should be developed by constructing hydraulic structures to increase food production & healthy economy and rivers need to be

restored to develop biodiversity of natural environment. Bangladesh Water Development Board (BWDB) is responsible organization for implementing such type of water resources development projects. The country expenses huge amount of money to construct hydraulic infrastructures like barrage, bridge, embankment, revetment, spur/groyne, dam, sluice gate, culvert etc. to mitigate flood, drought, river bank erosion, to protect crops & lands and to develop irrigation, drainage and communication system.

It is true that river problems are very complicated and require extensive scientific investigation, research and study in order to arrive at correct engineering solution before actually taking up/launching a project or scheme in the field, which is generally very costly. RRI is responsible for providing planning and design support to the water resources development projects. RRI has been providing planning & design support of hydraulic structures to the planners and designers through the researches, investigations and studies by means of both Physical and Mathematical Model study to make the project sustainable and cost effective. The researches, investigations and studies on river and other hydraulic problems result in economizing and sustainability of the different projects of water resources development and guard

against waste of huge expenditure. The expenditure involved in carrying out researches and investigation is very insignificant compared to the total cost of the development projects.

Since it's established, RRI has been successfully conducted about more than 200 physical model studies under different water resources development projects related to flood mitigation, river bank erosion, irrigation and drainage system development, and communication system development and river restoration. In addition, concrete materials, soil & water and sediment samples have been tested in RRI for maintaining the quality of hydraulic structures and for determination its foundation details. The modelling and test results have played an important role for sustainable design and planning of the allied projects.

RRI is the only Government research organization in Bangladesh where both physical and mathematical modelling facilities are available. So, it is possible to receive a specialized services from a single source organization at low cost and lesser time for making a project sustainable and cost effective through hybrid modelling approach. Thus RRI is travelling towards sustainable water resources development in Bangladesh.

## Celebrated Pitha Utshob in a grand manner for the first time at RRI

A Pitha Utshob is held at River Research Institute, Head Office, Faridpur in January 23, 2024. Honorable Joint Secretary of the Ministry of Water Resources Mr. Abdul Latif Mollah was the chief guest at the Pitha Utshob. Chief Executive Officer of Faridpur Zilla Parishad, Chief Engineer, Superintendent Engineer and Executive Engineer of Bangladesh Water Development Board, Faridpur, Senior Officials of other organizations of Faridpur were present as special guests in that event. Besides this, few Senior High Officials of Joint Rivers Commission, Bangladesh and Joint Rivers Commission, India were invited and present on the occasion. Mr. S M Abu Horayra, Director General of River Research Institute welcomed to all. All levels of officers and staffs of the River Research Institute participated and enjoyed a lot in the Pitha Utshob with their families.





In the Pitha Utshob, 42 kinds of Pitha and around 4000 Pitha, payesh, chocolates, chips, sweets, betel nuts, and various kinds of food were contributed by the employees of River Research Institute and their families. A wonderful cultural program and special attraction Raffle draw was organized. This family get together ends with a lovely dinner. The members of the sports and cultural committee of River Research Institute worked tirelessly to organize this Pitha Utshob, which was celebrated for the first time in the

history of River Research Institute, and Mr. S M Abu Horayra, Director General of River Research Institute, gave full support and valuable guidance at every step. On behalf of all the officers and staff of RRI and their families, we express our gratitude to the Director General and the members of the Sports and Cultural Committee. It is expected that such a diversified cultural program will continue in the future.





## MoU Signing Ceremony: A Remarkable Moment

RRI conduct two signing ceremony on the January-March, 2024 period with CUET and ECOSURV. The signing of the Memorandum of Understanding (MoU) between Chittagong University of Engineering & Technology (CUET) and River Research Institute (RRI) on the CUET campus (left picture). Register of CUET and Director General of RRI S M Abu Horayra signed the MOU. The other signing of the Memorandum of Understanding (MoU) between ECOSURV and River Research Institute (RRI) at the Modhumati Conference Room of RRI campus. ECOSURV is a private consulting and research organization. Mr Md. Shamsul Alam, Managing Director of ECOSURV signed the MOU with S M Abu Horayra, Director General of RRI. These mark a significant milestone for three institutions CUET, ECOSURV and RRI to share their experiences, knowledge, and facilities for collaborative research, enhancing the development of the water resources sector of the country.

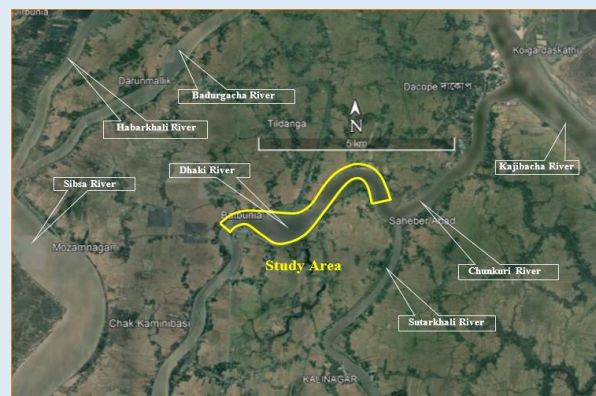


## On-going Physical and Mathematical Model Studies in RRI

### 1) Physical Modelling for Detailed Study for Restoration and Development of Water Resources Management System of Polder 31 under Dacope Upazila in Khulna District under BWDB project.

The overall objective of this project is to conduct a holistic and integrated study in devising a long-term plan for restoration and development of water resource management system of Polder 31. The specific objectives of the project are as below and field visit by the RRI Team to observe the Physical condition of Dhaki River is shown below:

- To improve understanding and gain insight into the physics of coastal and riverine processes;
- To test and optimize proposed designs by IWM;
- To provide data sets for improving numerical models
- To study sediment transport issues such as evolution of river bed profile, erosion and scour mechanism around bottom-founded coastal structures and changes in bathymetry due to water flow;
- To assess potential flood risk effect;
- Afflux effects on hydraulic structures; and
- To assess adequacy of hydraulic structures



## 2) Physical Modelling Study in connection with Updating the Feasibility Study of Surface Water Treatment Plant for Rajshahi WASA

The overall objective of the physical model study is to assess the hydro-morphological impact of the proposed intake structure and associated works including river training works and to come up with optimum design of the intake structure to ensure favorable flow conditions at the inlet to the pump through appropriate piping design. The study will ensure optimal hydraulics, preventing turbulence, vortex formation, and air entrainment under all operational conditions. The specific objectives are as follows:

- Investigation of the suitability and sustainability of the proposed intake structure location;
- Determination of the short and long-term impacts of the construction of intake structure at and upstream and downstream of the river;
- Assessment of the need for bank protection works and scour protection works; and
- Prediction of flow characteristics in the intake structure and pump sump.

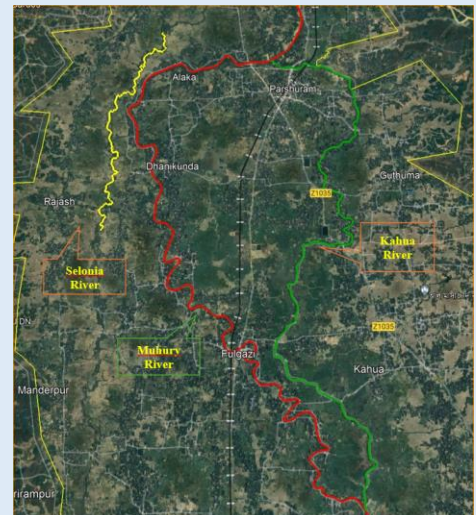
An Overview of the Intake components of the project is shown in below. A team of RRI was visited the project site in Godagari of Rajshahi district, along with the Director General of the River Research Institute in connection with the physical model study of the intake structure of the Surface Water Treatment Plant for Rajshahi WASA. A fruitful discussion meeting has been held with Mr. Cheng and other Chinese officials from the Hunan Construction Engineering Group (HCEG) at their site office for the project.



## 3) Physical Modelling for Rehabilitation of Muhuri-Kahua Flood Control, Drainage and Irrigation Project in Feni District.

According to the Terms of Reference (ToR), the main objective of the study is to assess the existing problems of Muhuri-Kahua FCDI Project and devise sustainable solutions and rehabilitation plan for the project. A Satellite Image around the study area is shown here. The specific objectives of the study according to ToR are as follows:

- To investigate the appropriate alignment of the flood bypass.
- To determine the optimum design parameters and dimensions of the flood bypass.
- To identify the suitable location of loop cuts.
- To assess the long-term sustainability of flood bypass and loop cuts.
- To identify the protective work for the proposed interventions.





4) **Hydro-Morphological Study for construction of Old Shibsra Bridge over the Old Shibsra River at 2nd Km of Paikgacha-Soladana-Batiaghata Road (Z-7608) under Road Division, Khulna.**

The overall objective of the proposed study is to determine the suitable location of bridge along with alignment of approach road and to provide the hydraulic design of bridge and approach road including the river training works, if required from hydraulic, hydrological and morphological considerations. The draft final reports of the study were submitted to the client.

5) **Hydro-Morphological Study of the Moyur River for Construction of Moyur Bridge-2 over the Moyur River at 4th km of Bangabondu Economic Zone Road under Road Division, Khulna**

The overall objective of the proposed study is to determine the suitable location of the bridge along with the alignment of the approach road and to provide the hydraulic design of bridge and approach road including the river training works, if required from hydraulic, hydrological and morphological considerations.



Figure: Suitable river stretch for siting the proposed bridge on the Moyur River

New arrival in RRI



Recently RRI is using **Portable Air Monitoring System with rain gauge (HAZ SCANNER, Model: HIM-6000)** for Environmental Monitoring and EIA study.

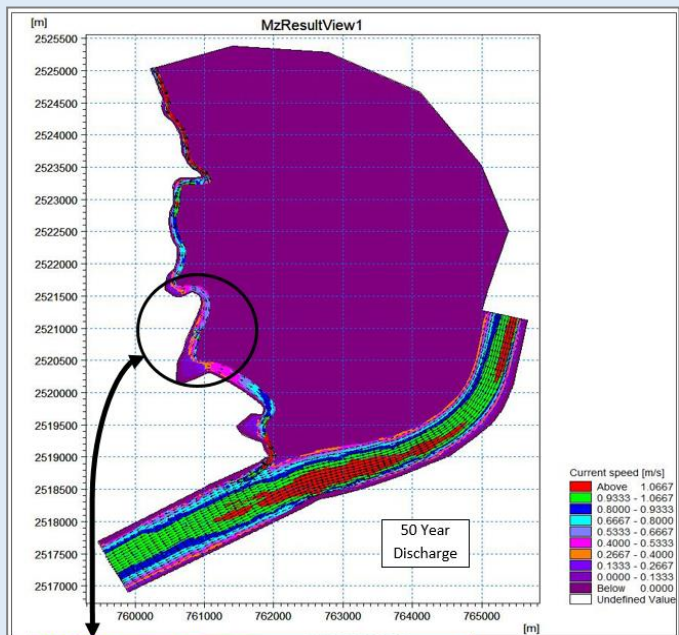


Figure: Velocity fields at and in the vicinity of the likely bridge locations (option-1 & 2) for 50-years return period disc



**RRI Celebrated Different National Days in Faridpur and Dhaka Office**



**National Children Day and 104<sup>th</sup> Birthday of Bangabandhu Sheikh Mujibur Rahman**





## Attending International Conference at KUET

Three Young Scientists of RRI namely Engr. Abdullah Al Imran, Senior Scientific Officer (left), Engr. Omar Al Maimun, Senior Scientific Officer (right) and Engr. Emran Ali Mondol, Scientific Officer (middle) were attended the 7<sup>th</sup> International Conference on Civil Engineering for Sustainable Development (ICCESD) 2024 held at Khulna University of Engineering & Technology (KUET) on 7-9 February 2024. They presented three different scientific research papers in the conference. They were awarded certificates for their presentation by the Organizing Committee.



## Courtesy and Greetings



A group of Senior Scientists, led by S M Abu Horayra, Director General, River Research Institute met with Mr. Md. Abdur Rahman, MP newly elected Member of Parliament for Faridpur-1 and appointed Honorable Minister for Ministry of Fisheries and Livestock and greeted him.

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